

REMARKS

Claims 1-6 and 21-22 were previously cancelled. With this amendment, claims 7-11 and 17-20 are cancelled, without prejudice, as being directed towards a previously non-elected invention. Claims 24 and 28-32 are withdrawn. Claims 12 and 23 are amended. No new subject matter is added. Claims 12-16 and 23-34 remain pending. Reconsideration and allowance of the pending claims is requested in light of the following remarks.

Traverse of the Restriction Requirement for claims 24 and 28-32

In the Office Action, the restriction of claims 24 and 28-32 was maintained. However, the Office Action fails to address the reasons for the impropriety of the restriction requirement as stated in the response to the final Office Action that was mailed on 14 December 2005.

Rather, the Office Action states that claims 24 and 28-32 are directed to “an invention that is independent or distinct from the invention originally claimed” because the claims “[do] not belong to the elected embodiment of Figure 5B.”

Claim 24 depends from claim 23. The applicant can find no authority for the proposition that a dependent claim is independent and distinct from the independent claim upon which it depends, and no such authority has been identified in the Office Action.

Furthermore, the allegation that claims 28-32 claims do not belong *to the elected invention* has no logical bearing upon whether or not claims 28-32 are directed to *an invention that is independent and distinct from the invention originally claimed*. To illustrate, let us suppose that invention A and invention B are two independent and distinct inventions ($A \neq B$). If $A \neq B$, then it does not follow that “not A” equals B ($A' = B$). The Office Action does not identify the independent and distinct invention that claims 28-32 are allegedly directed towards.

The Office Action justifies the restriction of claims 24 and 28-32 because “[the embodiment of] Figure 5B does not show a vertical plane running along the length of the third upper interconnection line and the fourth upper interconnection line bisects the third upper interconnection line and the [fourth] upper interconnection line.”

However, nowhere does claim 24 require that the invention include a vertical plane. Claim 24 requires that the fourth upper interconnection line be disposed *such that* a vertical plane running along the length of the third upper interconnection line and the fourth upper

interconnection line bisects the third upper interconnection line and the fourth upper interconnection line (emphasis added).

The recitation of “disposed such that a vertical plane ...” is a geometric construct that is used to clarify the orientation of the recited third and fourth upper interconnection lines. Clearly, FIG. 5B shows that elements 230c, 240c are arranged such that an imaginary vertical plane (normal to the plane of the paper) could be drawn along the length of elements 230c, 430c to bisect elements 230c, 430c. Clarifying the arrangement or orientation of a claimed structure (which is shown in the FIGURES) using such an imaginary geometric construct (which is not shown in the FIGURES) is both commonly known and frequently used.

For example, a search for the phrase “disposed such that” in the claims of all issued U.S. Patents since 1976 in the USPTO Patent Full-Text and Image Database revealed that the phrase was used in the claims for 643,675 patents. A similar search for the phrase “arranged such that” revealed that the phrase was used in the claims for 419,680 patents.

As another example, a search for the phrase “disposed such that a plane” revealed that the phrase was used in the claims for 4,631 patents. A similar search for the phrase “arranged such that a plane” revealed that the phrase was used in the claims for 1,621 patents.

As another example, a search for the phrase “disposed such that a line” revealed that the phrase was used in the claims for 1,299 patents. A similar search for the phrase “arranged such that a line” revealed that the phrase was used in the claims for 2,140 patents.

As another example, a search for the phrase “disposed such that an axis” revealed that the phrase was used in the claims for 1,460 patents. A similar search for the phrase “arranged such that an axis” revealed that the phrase was used in the claims for 638 patents.

As another example, a search for the phrase “disposed such that a vertical plane” revealed that the phrase was used in the claims for 545 patents. A similar search for the phrase “arranged such that a vertical plane” revealed that the phrase was used in the claims for 131 patents.

Although the Figures for each one of these patents were not individually checked, it seems highly unlikely that every one of the recited planes, lines, or axes was explicitly shown for each of the patents that were identified in the above searches. On the other hand, it seems highly likely that one of ordinary skill in the art would recognize that objects illustrated in the Figures had the structural relationship that was claimed, even if the recited planes, lines, and axes were not explicitly shown.

For the above reasons, a vertical plane need not be explicitly shown in FIG. 5B for the invention defined in claim 24 to be directed at the embodiment illustrated in FIG. 5B.

Similarly, claim 28 does not require that the invention include a vertical plane. Claim 28 requires that the first, second, and third upper interconnection lines are aligned with the first, second, and third lower interconnection lines *such that* a first vertical plane running along the length of the first lower interconnection line and the first upper interconnection line bisects the first lower interconnection line and the first upper interconnection line (emphasis added). This specified arrangement of the upper and lower interconnection lines is fully supported by FIG. 5B. Therefore, a vertical plane need not be explicitly shown in FIG. 5B for the invention defined in claim 28 to be directed at the embodiment illustrated in FIG. 5B.

Furthermore, the Office Action mailed on 30 June 2005 recognized that claim 12 was directed at least to the embodiment illustrated in FIG. 5B. Claims 24 and 28-32 are all directed at the embodiment illustrated in FIG. 5B, and share many of the same features as claims 12-16.

MPEP 806.03 states that when the claims of an application define the same essential characteristics of a *single* disclosed embodiment of the invention (in this case, FIG. 5B) restriction therebetween should *never* be required (emphasis added). This is because the claims are but different definitions of the same disclosed subject matter, varying in breadth or scope of definition. MPEP 806.03.

If the restriction requirement for claims 24 and 28-32 is not withdrawn in the next office action, the applicant requests that the restriction requirement be made final so that a petition to review the restriction requirement pursuant to 37 C.F.R. 1.144 may be promptly filed.

Claim Objections

Claim 12 is objected to because of the following informalities:

In claim 12, lines 14-15, "and and" should be changed to "and" for clarity.

In claim 12, line 16, after "a third upper interconnection", insert "--line--" for clarity.

Regarding claim 12, the claim has been amended to comply with the requirements in the office action.

Claim Rejections - 35 U.S.C. § 102

Claims 12-16, 23, 25-27 and 33-34 are rejected under 35 U.S.C. 102(b) as being anticipated by U.S. Patent Application No. 2001/0017418 to Noguchi, et al. ("Noguchi"). The applicant disagrees.

Regarding claims 12 and 23, the claims have been amended to clarify that the width of the upper interconnection lines is less than the width of the lower interconnection lines. The amendment is fully supported in the application as filed at, e.g., Figure 4F. Noguchi does not teach that the lower interconnection lines are wider than the upper interconnection lines. To the contrary, Noguchi teaches exactly the opposite at paragraph [0099]. Consequently, Noguchi does not anticipate amended claims 12 and 23 because it fails to show the identical invention in as complete detail as contained in the claims. MPEP 2131.

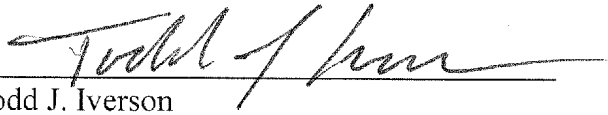
Claims 13-16, 25-27, 33 and 34 depend from claims 12 and 23, and inherently contain the features of these claims. Consequently, Noguchi fails to anticipate claims 13-16, 25-27, 33 and 34 for at least the same reasons it fails to anticipate claims 12 and 33. MPEP 2131.

Conclusion

For the reasons presented above, reconsideration and allowance of the pending claims is requested. Please telephone the undersigned at (503) 222-3613 if it appears that an interview would be helpful in advancing the case.

Respectfully submitted,

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